

Reduce the Frequency of Engine Starts with Gas



Partner Reported Opportunities (PROs)
for Reducing Methane Emissions

PRO Fact Sheet No. 102

Applicable sector(s):

☒ Production ☒ Processing ☒ Transmission and Distribution

Partners reporting this PRO: PECO Energy Company

Other related PROs: Install Electric Starters, Install Electric Compressors, Automate System Operations to Reduce Venting, Convert Engine Starting to Nitrogen

Compressors/Engines ☒
Dehydrators ☐
Pipelines ☐
Pneumatics/Controls ☐
Tanks ☐
Valves ☐
Wells ☐
Other ☐

Technology/Practice Overview

Description

Internal combustion engine driven turbine compressors are often started by directing unignited pipeline gas through the turbine compressor, rolling the turbine engine prior to ignition. The unignited gas, or startup natural gas, is vented to the atmosphere. Operating and maintenance schedules dictate how frequently such turbine engines are restarted.

One partner reports modifying maintenance practices and operational scheduling of an LNG refrigeration compressor to reduce engine startups. The principles of improved equipment reliability and operational scheduling may apply to other compressors in multi-unit stations.

Operating Requirements

Compressors must have flexible operating and routine maintenance schedules.

Applicability

This practice may be employed in operations that have multiple, parallel compressors.

Methane Savings: 132 Mcf per year

Costs

Capital Costs (including installation)

☒ <\$1,000 ☐ \$1,000 – \$10,000 ☐ >\$10,000

Operating and Maintenance Costs (annual)

☒ <\$100 ☐ \$100-\$1,000 ☐ >\$1,000

Payback (Years)

☒ 0–1 ☐ 1–3 ☐ 3–10 ☐ >10

Benefits

Reducing methane emissions was a primary justification for the project

Methane Emissions Reductions

The partner reported reducing a refrigeration compressor restart frequency from 9.4 starts per year to 1 start per year, saving 132 Mcf per each avoided restart, or 1.1 MMcf per year.

Economic Analysis

Basis for Costs and Savings

Methane emission reductions of 132 Mcf per year apply to one turbine engine startup by rolling with unignited pipeline gas as reported by a partner.

Discussion

This practice can pay back quickly. While there are no capital costs, there are potential hidden costs associated with prolonging compressor run times between scheduled preventive maintenance activities, and direct O&M costs associated with improving the maintenance and reliability of engines. In the case of a single engine-driven compressor, generator, or pump at a site, longer run times may lead to production losses from unscheduled shutdowns.